We claim:

1. A method for enhancing corrosion of an electrode in a biocompatible fluid, the method comprising:

placing a primary electrode and a counter electrode in contact with an electroconductive biocompatible fluid to form an electrochemical cell; and

applying a time-varying potential, through the electrochemical cell, to the primary electrode,

wherein the potential is characterized by a waveform having a maximum potential effectively anodic to meet or exceed the corrosion potential of the primary electrode, thereby corroding the primary electrode.

2. The method of claim 1, wherein the primary electrode is a metal electrode.

3. The method of claim 2, wherein the waveform has a minimum potential effectively cathodic to be below the value where re-deposition of metal ions on the metal electrode can substantially occur.

4. The method of claim 2, wherein the metal electrode comprises a metal selected from the group consisting of gold, platinum, silver, aluminum, chromium, copper, molybdenum, nickel, palladium, tantalum, titanium, tungsten, and zinc.

5. The method of claim 1, wherein the primary electrode has a thickness between about 100 and 1000 nm.

6. The method of claim 1, wherein the primary electrode comprises a reservoir cap of a microchip device for the release of molecules or exposure of device reservoir contents.

7. The method of claim 1, wherein the primary electrode comprises a polymer.

8. The method of claim 1, wherein the biocompatible fluid is a biological fluid.

9. The method of claim 8, wherein the biological fluid is selected from the group consisting of blood, plasma, lymph, extracellular matrix, interstitial fluid, serum, saliva, cerebrospinal fluid, gastrointestinal fluids, semen, and urine.

10. The method of claim 1, wherein the biocompatible fluid is selected from the group consisting of saline solutions, buffer solutions, pharmaceutical carrier solutions, and fermentation broths.

11. The method of claim 1, wherein the biocompatible fluid is *in vitro*.

12. The method of claim 1, wherein the biocompatible fluid is *in vivo* in a human or animal.

13. The method of claim 1, wherein the electrochemical cell consists of two electrodes.

14. The method of claim 1, wherein the electrochemical cell further comprises a reference electrode, which is placed in contact with the biocompatible fluid.

15. The method of claim 1, wherein the waveform is selected from the group consisting of square waves, sine waves, triangle waves, sawtooth waves, and combinations thereof.

16. The method of claim 1, wherein the potential is applied at a frequency between about 1 and 10 Hz.

17. A microchip device for the release or exposure of reservoir contents comprising:

a substrate having reservoirs containing contents, wherein the reservoirs have reservoir caps which comprise a primary electrode; and

a means for applying a time-varying potential to the primary electrode in an amount effective to corrode the primary electrode when placed in contact with an electroconductive fluid, said means comprising a counter electrode.

18. The microchip device of claim 17, wherein the time varying potential is characterized by a waveform having a maximum potential effectively anodic to meet or exceed the corrosion potential of the primary electrode.

19. The microchip device of claim 17, wherein the primary electrode is a metal electrode.

20. The microchip device of claim 19, wherein the waveform has a minimum potential effectively cathodic to be below the value where re-deposition of metal ions on the metal electrode can substantially occur.

21. The microchip device of claim 19, wherein the metal electrode comprises a metal selected from the group consisting of gold, platinum, silver, aluminum, chromium, copper, molybdenum, nickel, palladium, tantalum, titanium, tungsten, and zinc.

22. The microchip device of claim 17, wherein the primary electrode comprises a polymer.

23. The microchip device of claim 17, wherein the means for applying a time-varying potential further comprises a reference electrode.

24. The microchip device of claim 17, wherein the primary electrode has a thickness between about 100 and 1000 nm.

25. The microchip device of claim 17, wherein the reservoir contents comprise a drug, a biosensor, or a combination thereof.

26. A method of releasing or exposing the reservoir contents of a microchip device at a site, the method comprising:

providing the microchip device of claim 17 at a site;

placing the primary electrode and the counter electrode in contact with an electroconductive fluid to form an electrochemical cell; and

applying a time-varying potential, through the electrochemical cell, to the primary electrode to corrode the primary electrode in an amount effective to disintegrate the reservoir cap and release or expose the reservoir contents.

27. The method of claim 26, wherein the potential is characterized by a waveform having a maximum potential effectively anodic to meet or exceed the corrosion potential of the primary electrode.

28. The method of claim 26, wherein the primary electrode is a metal electrode.

29. The method of claim 28, wherein the waveform has a minimum potential effectively cathodic to be below the value where re-deposition of metal ions on the metal electrode can substantially occur.

30. The method of claim 26, wherein the electroconductive fluid is a biocompatible fluid.

31. The method of claim 30, wherein the electroconductive fluid is a biological fluid.

32. The method of claim 31, wherein the biological fluid is selected from the group consisting of blood, plasma, lymph, extracellular matrix, interstitial fluid, serum, saliva, cerebrospinal fluid, gastrointestinal fluids, semen, and urine.

33. The method of claim 30, wherein the biocompatible fluid is selected from the group consisting of saline solutions, buffer solutions, pharmaceutical carrier solutions, and fermentation broths.

34. The method of claim 26, wherein the electroconductive fluid is *in vivo* in a human or animal.